



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/KR93/00090 <b>(22) International Filing Date:</b> 8 October 1993 (08.10.93) <b>(71)(72) Applicant and Inventor:</b> CHOI, Byung, Soon [KR/KR]; Youngin Yeonrip 102, Deungchon-dong 644-38, Kangseo- ku, Seoul 157-030 (KR).		<b>(81) Designated States:</b> AU, BB, BG, BR, BY, CA, CZ, FI, HU, JP, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> AIR SUPPLYING MATTRESS APPARATUS  <b>(57) Abstract</b>  The upper and lower layers are composed of a soft layer (5) and a semi-hardened layer (6). And on the total surface of the upper or lower layer there are many projections (2, 3) between which many vents (4) are penetrated. An airbag (7) is attached to the floor of the semi-hardened layer, and to the airbag (7) a fan motor where a timer and a speed controller are attached is connected through an air-sending hose, thereby for warm or cool or natural (in a natural temperature) air to be supplied. So in particular, it is expected that this invention will heighten the efficiency of the use of "mattress" chairs, mattress beds, mattress sofas, and general mattress products by way of connecting it with a warm or cool ventilating system.		

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## AIR SUPPLYING MATTRESS APPARATUS

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## TECHNICAL FIELD

This new invention has its purpose to make people  
10 pleasant, satisfied, and delightful by means of supplying  
warm or cool or natural (in a natural temperature)  
pleasant air to the apparatus where people sit on,  
lean against, or lie down.

15

## BACKGROUND ART

This invention is about a system that a ventilating  
system composed of various electronic parts sends warm or  
20 cool or natural (in a natural temperature) pleasant air  
to the inside where soft, malleable polyurethane foams  
having good elasticity are attached, and thereby, the  
kinds of mattress products - chair, bed, sofa, mattress,  
etc., where people sit on or lean against or lie down  
25 are created so that people can feel pleasant and  
delightful.

## DISCLOSURE OF INVENTION

30

Even though many kinds of products - chair, bed, sofa,  
mattress, etc., where people sit on or lean against or  
lie down with feeling of softness and good elasticity  
have been produced and used, there have been no products  
35 where by sitting on or leaning against or lying down  
people can feel warm or cool or natural air. However,  
a new device invented by me is one, an one-step-advanced  
device, that is completely devised for people to feel

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warm or cool or natural (in a natural temperature) air.

Even though there are many kinds of chairs, beds, sofas, mattresses, etc., in the world, I am so proud of my invention in its pleasantness of other products.

5 This invention is about pleasantness and delightfulness improved 'mattress' chairs, mattress beds, mattress sofas, and general mattresses by which even if any user sits on or lies down for a long time, the user can feel more pleasant or delightful by the air passing through  
10 the vents which form a soft layer(5) and a semi-hardened layers(6) on the upper or lower layer of polyurethane foams. Traditionally, even though various 'mattress' chairs, mattress beds, mattress sofas, and usual mattresses made from polyurethane materials have  
15 been used, there have been no mattress products that supply warm or cool air so far.

This invention is a results of various researches and experiments which required a long time in an effort to fundamentally solve and complement the traditional weak  
20 points of mattress products. The detailed contents with the drawing presented are as follows;

The upper and lower layers are composed of a soft layer(5) and a semi-hardened layer(6). And on the total surface of the upper or lower layer there are many  
25 projections(2)(3) between which many vents(4) are penetrated. An airbag(7) which is airtight is attached to the floor of the semi-hardened layer, and to the airbag(7) a fan motor where a timer and a speed controller are attached is connected through an air-sending hose,  
30 thereby for warm or cool or natural (in a natural temperature) air to be supplied to each vent.

The following are the explanation of functional effect; In the first place, when a 'mattress' chair or mattress beds, mattress sofas and usual mattresses is  
35 formed, a soft layer(5) and semi-hardened layer(6) form on the upper layer and the lower layer; the reason of this formation is to produce a function that, even though the projections(3) on the base of the lower layer

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are a little harder, no influence is affected on the projections even if they are pressed when the mattress is being used and thereby, good ventilating effect is resulted so that the user will feel more pleasant;

5 the reason of the upper layer being a soft layer(5) is that even if the user's back or hip is touched or pressed by the surface of the projections(2), there is no pain on the user's back or hip, instead, giving the user cushiony effect and airial effect.

10 Additionally, the surface of the mattress product is veiled by a cover which enables for air to pass, and therefore the cover on the upper or lower surface and the projections on the base(2)(3) makes easy of ventilation.

15

#### BRIEF DESCRIPTION OF DRAWINGS

FIGURE 1 is a bird's-eye view, and left side is  
20 cutting plane view.

FIGURE 2 is straight down looking view.

FIGURE 3 is a cutting plane view.

#### 25 BEST MODE FOR CARRYING OUT THE INVENTION

As such, this invention gives a pleasant and delightful feeling to the user by means of the 'mattress' chair, mattress bed, mattress sofa, or usual mattress in  
30 which warm or cool or natural (in a natural temperature) air passes in combination of various parts upper and lower projections, vents, a soft layer, semi-hardened layer, airbag, a fan motor attached by a timer and a speed controller which is connected by a ventilating  
35 hose.

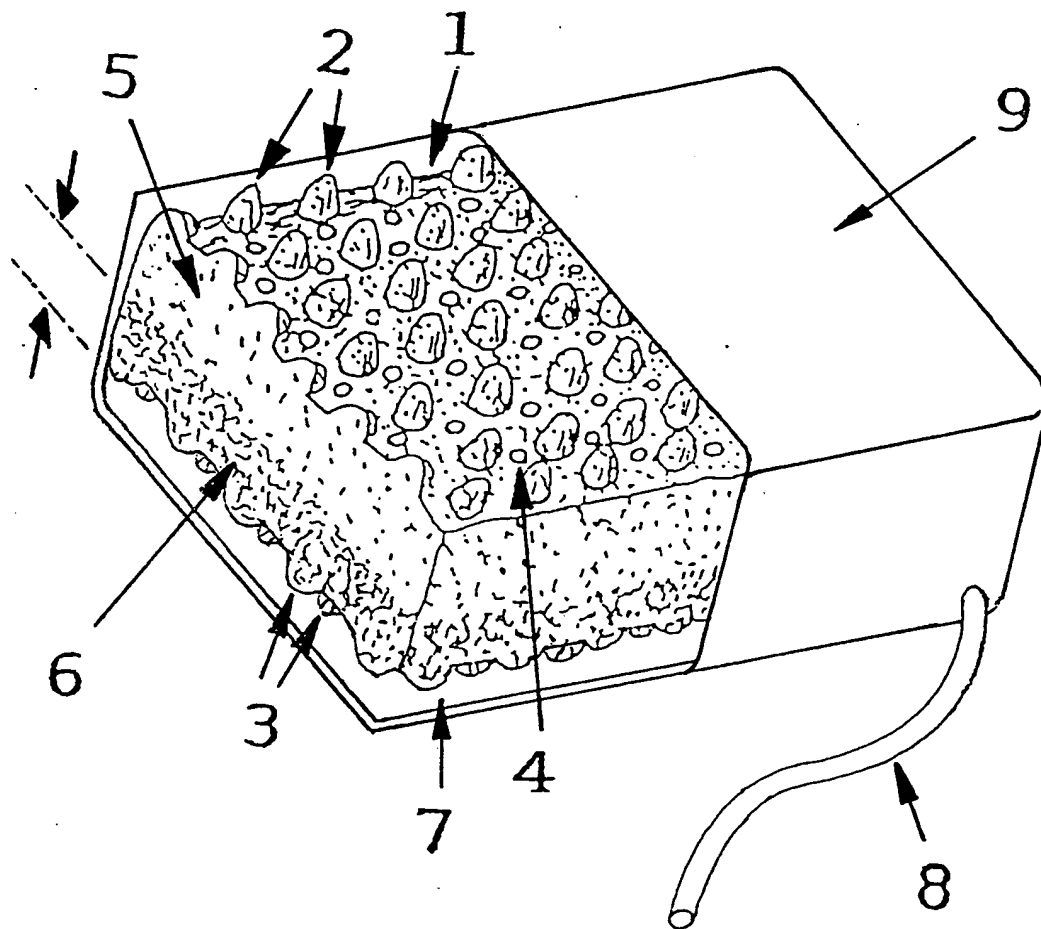
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## CLAIMS

1. All kinds of products such as 'mattress' chairs, mattress beds, mattress sofas, ordinary mattresses, etc.,  
5 using a device; i.e., as seen in the drawing, all the functions such as;  
the upper and lower layers are composed of a soft layer(5) and semi-hardened layer(6). And on the total surface of the upper or lower layer there are many  
10 projections(2)(3) between which many vents(4) are penetrated. An airbag(7) is attached to the floor of the semi-hardened layer, and to the airbag(7) a fan motor where a timer and a speed controller are attached is connected through an air-sending hose, thereby for a  
15 warm or cool or natural (in a natural temperature) air to maintained in 'mattress' chairs, mattress beds, mattress sofas, and general mattresses for convenience at home, office, vehicle, ship, aircraft, etc.,
- 20 2. In the item 1 of claims, specially all kinds of 'mattress' chairs, mattress beds, mattress sofas, and general mattresses which connected to any cooling or warming device of the car, ship, aircraft, other equipment, and machinery in order to highten the  
25 effect of pleasantness and delightfulness.
3. This principle can apply to all various of blankets, instead of it, soft layer and semi-hardened layer must unify as extremely soft layer.
- 30 4. In case that this invention is applied to the pillow, this invention can be additionally designed for any part of the face, eye, nose, etc., of serious cases(patients), babies, and ordinary people to be satisfied and felt  
35 pleasant by means of a properly sized 'T' type vent which will be supplied as necessary.

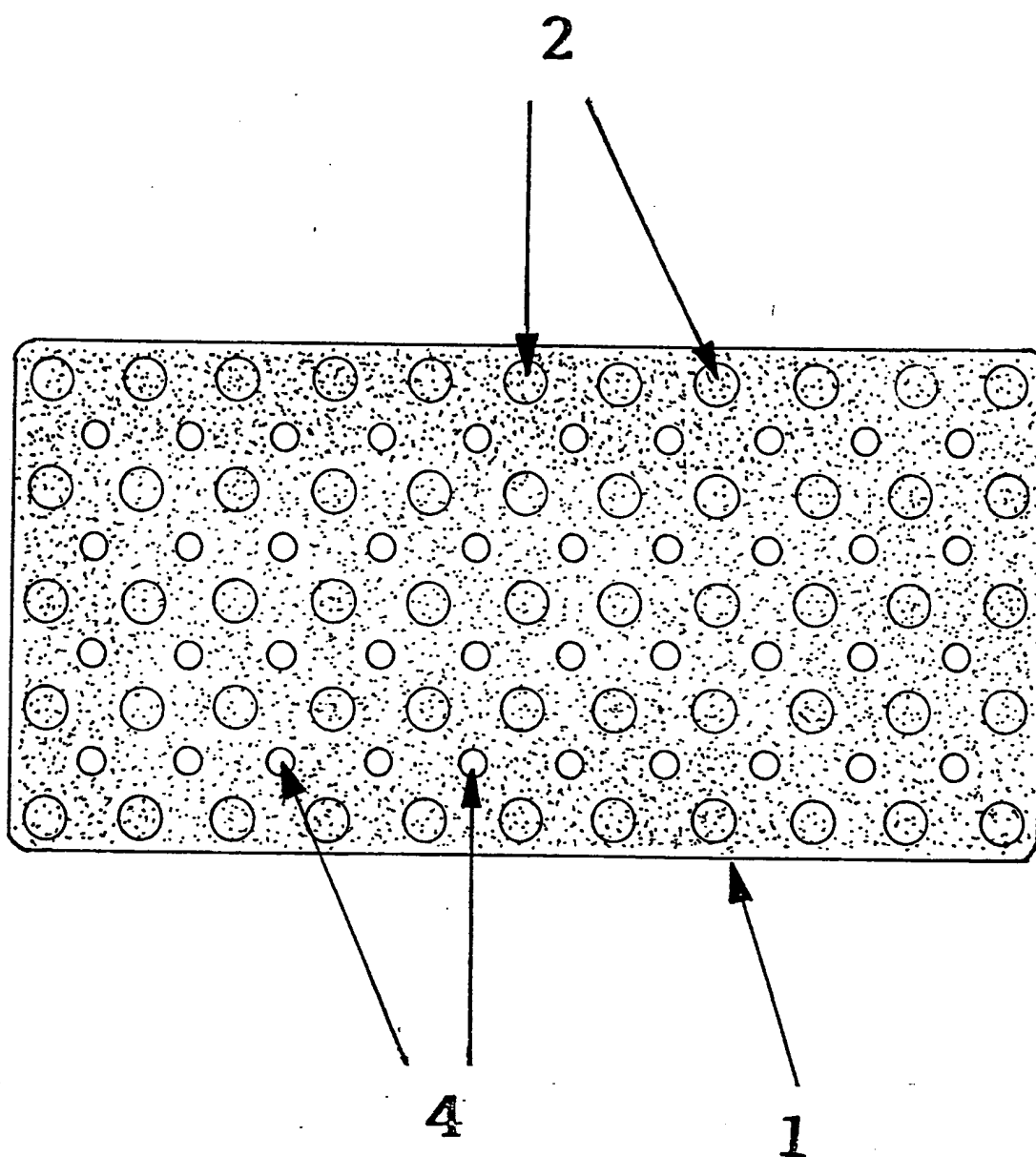
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FIGURE 1



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**FIGURE 2**

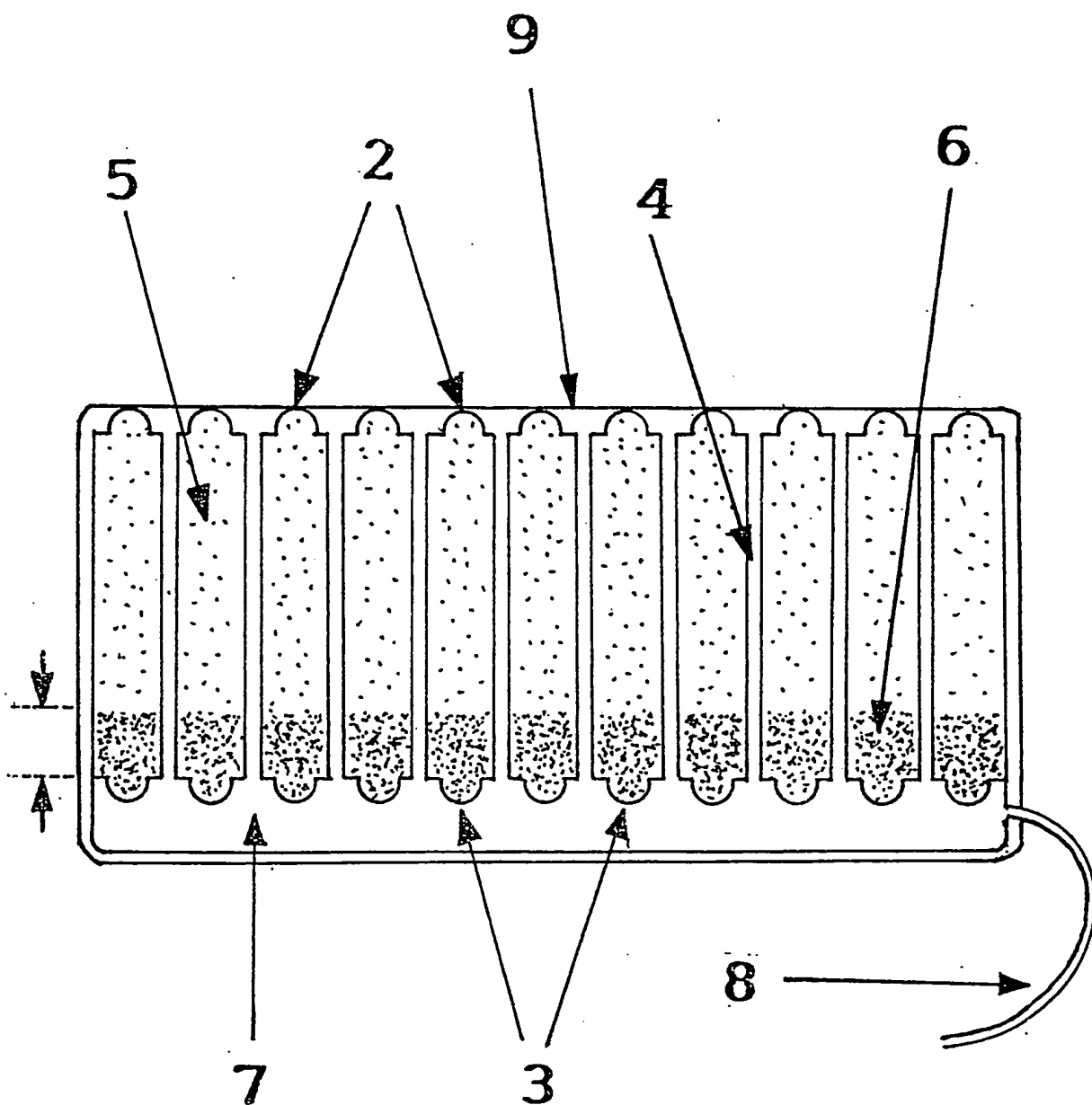
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FIGURE 3



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FIGURE      EXPLANATION

FIGURE 1;      A bird's-eye View

FIGURE 2;      Plane View

FIGURE 3;      A Cutting Plane

- |                     |                        |
|---------------------|------------------------|
| 1. Mattress         | 2. Upper Projection    |
| 3. Lower Projection | 4. Vent                |
| 5. Soft Layer       | 6. Semi-hardened Layer |
| 7. Airbag           | 8. Air-sending Hose    |
| 9. Cover            |                        |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 93/00090

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>6</sup>: A 47 C 27/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>6</sup>: A 47 C 27/08

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Questel Telesystems (WPIL), Derwent Publications Ltd., London

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB, A, 488 197 (ROBERT WILLIAM SAMPSON) 01 July 1938 (01.07.38), totality.	1-3
A	GB, A, 590 700 (LEA BRIDGE INDUSTRIES) 25 July 1947 (25.07.47), totality.	1-3
A	GB, A, 1 596 157 (NATIONAL RESEARCH DEVELOPMENT CORPORATION) 19 August 1981 (19.08.81), totality.	1,2
A	US, A, 4 951 335 (EADY) 28 August 1990 (28.08.90), claims; figs..	1,2
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☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

24 June 1994 (24.06.94)

Date of mailing of the international search report

01 July 1994 (01.07.94)

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Im Recherchenbericht angeführtes Patentdokument Patent document cited in search report Document de brevet cité dans le rapport de recherche		Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
GB A	488197		keine - none - rien	
GB A	590700		keine - none - rien	
GB A	1596157	19-08-81	US A 4136413 US A 4185341	30-01-79 29-01-80
US A	4951335	28-08-90	keine - none - rien	